03/14/03

Re: 09/762,100

Examiner Thomas

Attached are edited first pass search results from the patent and nonpatent databases.

Green tags indicate abstracts especially worth your review.

If you need further searching or have questions or comments, please let me know.

Thanks,
Derrick Blalock,
STIC-EIC2800
306-0935
CP4-9C18

FILE 'REGISTRY'

L1 5 S (K AND AL AND B AND O)/ELS AND 4/ELC.SUB

L2 1 S 88160-55-8/RN

FILE 'HCAPLUS' ENTERED AT 10:01:35 ON 14 MAR 2003

L3 317 S K2AL2B2O7 OR KAB OR KABO

L4 30541 S PATASSIUM(A)ALUMINUM(W)BORATE OR BORIC(W)AC ID

L5 164330 S NONLINEAR? OR NON(W)LINEAR?

L6 1744244 S CRYSTAL?

L7 689693 S OPTICAL

L8 883714 S LED OR LIGHT(A)EMIT? OR LUMINANCE OR LUMINESCENCE OR PHOTOLUMIN? OR ILLUMIN? OR ILLUME? OR ILLUMINE? OR LASER OR PLD OR OPTIC

L9 21 S L1 OR L2

L10 30840 S (L3 OR L4) NOT L9

L11 2813 S L10 AND L6

L12 205 S L11 AND L8

L13 43 S L5 AND L12

L14 40 S L3 AND L6

L15 22 S L14 NOT (L9 OR L13)

L16 30566 S POTASSIUM(A)ALUMINUM(W)BORATE OR BORIC(W)AC ID

L17 2809 S L16 AND L6

L18 208 S L17 AND L8

L19 82 S L18 AND L7

L20 41 S L19 AND L5

L21 0 S L20 NOT (L9 OR L13 OR L14)

L22 725 S L4 AND L7

L23 227 S L22 AND L6

L24 77 S L23 AND L5

L25 41 S L24 NOT (L9 OR L13 OR L14)

L26 40 S L3 AND L6

L27 0 S L26 NOT (L9 OR L13 OR L14 OR L26)

L28 10 S K(A)AL(W)(BO OR BORATE OR B)

FILE 'HCAPLUS'

L29 130 S L9 OR L14 OR L20 OR L25 OR L28

L30 53 S L29 NOT L24

L31 0 S L25 NOT L24

L32 24 S (EP693704/PN OR FR2744248/PN OR CN1027514/PN OR CN1073729/PN OR CN1075845/PN OR CN1076054/PN OR CN1084399/PN OR CN1084400/PN OR CN1085612/PN OR CN1215767/PN OR CN1225952

/PN OR CN1236027/PN OR CN1279306/PN OR CN1320725/PN OR EP1103843/PN OR JP03097748/PN OR JP07089796/PN OR JP07244310/PN OR JP08006082/PN OR JP08054654/PN OR JP09033964/PN OR JP09061864/PN OR JP2000347234/PN OR JP2002355079/PN OR US2003035448/PN OR US5108658/PN OR US5381754/PN OR US5581010/PN OR US5581395/PN OR US5940417/PN OR US6146553/PN OR WO200000852 4/PN OR WO2001020397/PN)

FILE 'WPIX, JAPIO'

L33 65 S K2AL2B2O7 OR KAB OR KABO
L34 15662 S POTASSIUM(N) ALUMINUM(W) BORATE OR BORIC(W) ACID OR (K(N) AL(W)(BO OR BORATE OR B))
L35 51826 S NONLINEAR? OR NON(W) LINEAR?
L36 535159 S CRYSTAL?
L37 819457 S OPTICAL?
L38 760939 S LED OR LIGHT(N) EMIT? OR LUMINANCE OR LUMINESCENCE OR PHOTOLUMINAT? OR ILLUMINAT? OR ILLUME? OR ILLUMINE? OR LASER OR PLD OR OPTIC
L39 31 S L32
L40 64 S L33 NOT L39
L41 535222 S L40 OR L36
L42 1 S L40 AND L36
L43 11 S L40 AND L37
L44 6 S L40 AND L38
L45 2 S L40 AND L35
L46 12 S (L42 OR L43 OR L44 OR L45)
L47 1 S K2AL2B2O7

FILE 'DPCI' ENTERED

L48 0 S (EP1103843 OR JP2000564098 OR CN1315014 OR KR2001072205)/PN.G,PN.D

FILE 'WPIX, JAPIO'

L49 953 S L34 AND L36
L50 67 S L49 AND L37
L51 9 S L50 AND L38
L52 42 S L34 AND L37 AND L38
L53 9 S L52 AND L36
L54 18 S (L50 OR L52) AND L35
L55 23 S L51 OR L53 OR L54
L56 16 S L55 NOT (L39 OR L46)

L46 ANSWER 1 OF 12 WPIX (C) 2003 THOMSON DERWENT
AN 2001-530791 [59] WPIX
DNN N2001-394020
TI **Laser** diodes driving method e.g. for **laser** printer, has four-pole network connected between first **laser** diode forming cross-talk source and second **laser** diode forming cross-talk sink.
DC T03 W02 W04
IN ZELENKA, T
PA (HEIC) HEIDELBERGER DRUCKMASCHINEN AG
CYC 1
PI DE 19942551 A1 20010315 (200159)* 8p
ADT DE 19942551 A1 DE 1999-19942551 19990907
PRAI DE 1999-19942551 19990907
AB DE 19942551 A UPAB: 20011012
NOVELTY - **Laser** recording equipment i.e. **laser** printers and digital printing machines, having close arranged **laser** diodes, such as so-called **laser** diode bars comprising a number of tightly arranged **laser** diodes on a common substrate carrier and having individual electrically driven, controlled emitters often suffer from **optical** and thermal cross-talk. To allow for the fact that the cross-talk effect is dynamic, to effectively provide rapid modulation of the **laser** light beams in the **laser** recording equipment, an electric four-pole network (14) is connected between a first **laser** diode (5A) forming a cross-talk source, and a second **laser** diode (5B) forming a cross-talk sink, and the four-pole network receives the video-signal (VA) or the driver current (ITB) of the second **laser** diode. The output signal of the four-pole network is used as a correction signal (**KAB**) for the video signal.
USE - Electronic reproduction equipment engineering, particularly **laser** printers and digital printing machines.
ADVANTAGE - Enables thermal and **optical** cross-talk to be dynamically compensated in drive circuit for **laser** recording equipment with **laser** diodes closely arranged next to one another.
DESCRIPTION OF DRAWING(S) - A block-diagrammatic arrangement for the drive circuit is given.
Laser diodes 5A-5C
Current sources 12A,B,C
Correction stages 14-17
Dwg.2/4

L46 ANSWER 2 OF 12 WPIX (C) 2003 THOMSON DERWENT
AN 1994-095411 [12] WPIX
DNN N1994-074730 DNC C1994-043733
TI Over-writable type **optical** disk for CD players - comprises transparent substrate light absorbing layer, light interference layer and reflection layer.
DC A89 G06 L03 T03 W04
PA (NPCO) DENON CO LTD
CYC 1
PI JP 06044611 A 19940218 (199412)* 4p
ADT JP 06044611 A JP 1992-72696 19920221
PRAI JP 1992-72696 19920221
AB JP 06044611 A UPAB: 19940510
Medium comprises a lamination of (a) transparent substrate, (b) a light absorption layer made of 0.08-0.15 micron thick organic colouring material layer with 2.2-3.0 of real number portion Nabs and 0.05-0.1 imaginary number portion **Kabs** on complex refraction index, (c) a 0-0.15

micron thick light interference layer with up to 2.0 of refractive index e.g. AlN, SiO2, Si2N3 etc., and (d) at least 0.05 micron thick Al, Au etc. reflection layer in order. The substrate has a V shape pregroove with 0.16-0.3 micron depth (Gd) and 0.4-1.0 upper portion width (Gw).

An overwritable **optical** disk was prepd. by lamination of a 1.2 mm thick and 120 mmdia polycarbonate substrate with groove (Gw = 0.4-1.0 micron, Gd = 0.1-0.3), 0.12 micron thick light absorption layer made of a dye of ''NK3567'' (RTM), a 0.05 micron thick AlN film, an 0.07 micron thick Al reflection film and an 10 microns thick UV ray curing type resin protection film in order.

ADVANTAGE - The disk has compatibility with CD and LD players.

Dwg.1/5

L46 ANSWER 3 OF 12 WPIX (C) 2003 THOMSON DERWENT
AN 1990-336510 [45] WPIX
DNN N1990-257382 DNC C1990-145990
TI Writable **optical** data recording medium - comprises substrate, light absorptive and reflective layers and has defined value to an **optical** parameter relating to refractive index.
DC A89 E23 G06 L03 P75 T03 W04
IN ARAI, Y; HAMADA, E; ISHIGURO, T; TAKAGISI, Y; TAKAGISI, U
PA (TAIO) TAIYO YUDEN KK
CYC 21
PI EP 396040 A 19901107 (199045)*
R: AT BE CH DE ES FR GB GR IT LI NL SE
AU 9053918 A 19901108 (199101)
JP 02292747 A 19901204 (199103)
CA 2015811 A 19901102 (199104)
FI 9002173 A 19901103 (199107)
PT 93939 A 19911129 (199201)
US 5213955 A 19930525 (199322) 13p
US 5407719 A 19950418 (199521) 12p
CA 2015811 C 19950725 (199537)
EP 396040 B1 19950816 (199537) EN 24p
R: AT BE CH DE DK ES FR GB GR IT LI NL SE
DE 69021623 E 19950921 (199543)
ES 2078259 T3 19951216 (199606)
PH 28965 A 19950630 (199902)
KR 9514837 B1 19951215 (199904)
US 6156482 A 20001205 (200066)
US 6346364 B1 20020212 (200219)
ADT EP 396040 A EP 1990-108064 19900427; JP 02292747 A JP 1989-113198 19890502; US 5213955 A US 1990-515421 19900427; US 5407719 A Div ex US 1990-515421 19900427, US 1993-7738 19930122; CA 2015811 C CA 1990-2015811 19900501; EP 396040 B1 EP 1990-108064 19900427; DE 69021623 E DE 1990-621623 19900427, EP 1990-108064 19900427; ES 2078259 T3 EP 1990-108064 19900427; PH 28965 A PH 1990-40442 19900427; KR 9514837 B1 KR 1990-6212 19900501; US 6156482 A Div ex US 1990-515421 19900427, Cont of US 1993-7738 19930122, US 1994-344663 19941122; US 6346364 B1 Div ex US 1990-515421 19900427, Cont of US 1993-7738 19930122, Cont of US 1994-344663 19941122, US 2000-593133 20000614
FDT US 5407719 A Div ex US 5213955; DE 69021623 E Based on EP 396040; ES 2078259 T3 Based on EP 396040; US 6156482 A Div ex US 5213955, Cont of US 5407719; US 6346364 B1 Div ex US 5213955, Cont of US 5407719
PRAI JP 1989-113198 19890502
AB EP 396040 A UPAB: 19930928
(A) An **optical** information recording medium is claimed. It comprises a light transmitting substrate (I), a light absorptive layer (II) contg. at least one light absorbing substance (III) formed on (I), and a light reflective layer (IV) made of a metal film formed on (II). An **optical** parameter "rho" of the medium, defined by relationship (V)

involving the real part or the complex relectvrefrerefractve ndex of (II) (nats), the average thickness of (II) (dabs) and the wavelength of a reading **laser** beam (lambda) lies between 0.6 and 1.6: (V) "rho" = nabs.dabs/"lambda". Pref. the imaginary part of the complex refractive index of (II) (**Kabs**) is at most 0.2. More pref., a protective layer (VI) is formed on (IV) and **Kabs** is 0.001-0.2 inclusive. More pref. (VI) is a photocurable resin. Pref. (II) contains a cyanine dye (VII), pref. an indodicarbocyanine, either alone or together with at least one other (III).

USE/ADVANTAGE - The invention provides a writable **optical** information recording medium which has high reflectance and which is capable of providing read-out signals having a high degree of modulation. The medium thus meets the standardized specifications set for compact disc or ROM-type **optical** information recording media, which are not writable after prodn. @

3/5@

L46 ANSWER 4 OF 12 WPIX (C) 2003 THOMSON DERWENT
AN 1990-038202 [06] WPIX
CR 1990-038200 [06]; 1990-038201 [06]; 1990-038203 [06]; 1996-487532 [49]
DNN N1990-029459
TI **Optical** information recording medium compatible with compact disc - utilises chemical dye undergoing exothermic reaction under **laser illumination** to form **optical** pits readable by **laser**.
DC P75 T03 W04
IN ARAI, Y; HAMADA, E; ISHIGURO, T; SHIN, Y
PA (TAIO) TAIYO YUDEN KK; (TAIO) TAIYO YUDEN CO LTD
CYC 21
PI EP 353393 A 19900207 (199006)* EN 43p
R: AT BE CH DE ES FR GB GR IT LI NL SE
PT 91309 A 19900208 (199009)
AU 8935107 A 19900215 (199013)
DK 8902545 A 19900131 (199015)
FI 8903563 A 19900131 (199018)
JP 02086489 A 19900327 (199018)
JP 02087339 A 19900328 (199019)
JP 02087340 A 19900328 (199019)
JP 02087342 A 19900328 (199019)
JP 02087345 A 19900328 (199019)
JP 02132656 A 19900522 (199026)
JP 02147286 A 19900606 (199029)
US 5090009 A 19920218 (199210)
CA 1326710 C 19940201 (199410)
PH 26094 A 19920206 (199511)
EP 353393 B1 19950719 (199533) EN 44p
R: AT BE CH DE ES FR GB GR IT LI NL SE
DE 68923494 E 19950824 (199539)
ES 2076942 T3 19951116 (199551)
KR 9505964 B1 19950607 (199711)
EP 353393 B2 19990721 (199933) EN
R: AT BE CH DE ES FR GB GR IT LI NL SE
DK 174000 B 20020402 (200230)
ADT EP 353393 A EP 1989-106811 19890417; JP 02086489 A JP 1988-239164 19880924; JP 02087340 A JP 1988-238456 19880922; JP 02087342 A JP 1988-239167 19880924; JP 02087345 A JP 1988-239166 19880924; US 5090009 A US 1989-340528 19890414; CA 1326710 C CA 1989-599415 19890511; PH 26094 A PH 1989-38708 19890526; EP 353393 B1 EP 1989-106811 19890417; DE 68923494 E DE 1989-623494 19890417, EP 1989-106811 19890417; ES 2076942 T3 EP 1989-106811 19890417; KR 9505964 B1 KR 1989-10426 19890722; EP 353393 B2 EP 1989-106811 19890417; DK 174000 B DK 1989-2545 19890525

FDT DE 68923494 E Based on EP 353393; ES 2076942 T3 Based on EP 353393; DK 174000 B Previous Publ. DK 8902545
PRAI JP 1988-239167 19880924; JP 1988-191714 19880730; JP 1988-214470 19880829; JP 1988-238456 19880922; JP 1988-239163 19880924; JP 1988-239164 19880924; JP 1988-239165 19880924; JP 1988-239166 19880924
AB EP 353393 A UPAB: 19961211
An **optical** information recording medium having a highly reflective substrate is capable of providing readout signals with a high modulation which will meet the standards associated with compact disc utilising a **laser** beam to read the recorded information. A chemical dye is made up having the necessary properties to record information by a **laser** of the power and wavelength associated with compact disc standards. This dye is then laid down onto a substrate to comprise a light absorptive layer.
Thus the medium comprises a light transmitting substrate, a light absorptive layer of chemical dye and a light reflective layer to achieve a specific **optical** parameter with information recorded as **optical** pits.
Dwg.1/19

L46 ANSWER 5 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1999-219290 JAPIO
TI REPRODUCING DEVICE OF **OPTICAL** STORAGE DISK
IN YAMAMOTO KAZUYUKI
PA NIPPON CHEMICON CORP
PI JP 11219290 A 19990810 Heisei
AI JP 1998-35483 (JP10035483 Heisei) 19980202
PRAI JP 1998-35483 19980202
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
AB PROBLEM TO BE SOLVED: To prevent the illegal reproduction and usage of a program by means of a third person by enciphering decoded data outputted from an IC card through the use of common key data which is generated by means of a common key generating means and outputting the enchiphered data.
SOLUTION: CPU 10 outputs an instruction to the IC card 3 which is inserted to an IC card reader 8 so as to output cipher generating information data (YB). A control part 17 incorporated in IC 4 indicates a generating part 16, permits it to generate cipher generating information data (YB) and outputs it to the IC card reader 8. Besides, generated cipher generating data (YA) is outputted to the IC card 3. The control part 17 of the IC card 3 indicates the enciphering of decoding key data which is stored in a ROM part 14, the cipher generating part 16 generates common key data (**KAB**) from the cipher generating information data (YA) and a random number (XB) and decoding key data is enciphered and outputted to the control part 17. The decoding key data is outputted to the IC card reader 8 of a main body part 2 by the control part 17.

L46 ANSWER 6 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1995-282465 JAPIO
TI **OPTICAL** INFORMATION RECORDING MEDIUM AND ITS REPRODUCING METHOD
IN ISHIGURO TAKASHI; SHIN ARIAKE; HAMADA EMIKO; ARAI YUJI
PA TAIYO YUDEN CO LTD
PI JP 07282465 A 19951027 Heisei
AI JP 1995-47756 (JP07047756 Heisei) 19950213
PRAI JP 1995-47756 19950213
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1995
AB PURPOSE: To make it possible to have a high reflectivity, to obtain an output signal of a high modulation degree complying with a CD format at the time of reproducing of data, to record information and to make

production with simple means without using means, such as pressing.
CONSTITUTION: At least a light absorption layer 2 ana reflection layer 3 are successively formed on a substrate 1 having translucency. The ρ=nabs.dabs/λ given by the real number part nabs of the complex refractive index of the light absorption layer 2, film thickness dabs and the wavelength λ of the reproducing light is 0.05<=ρ<=0. 6 and the imaginary part **kabs** of the complex refractive index of the light absorption layer 2 is 0.01<=**kabs**<=0.3. Pits 5 recording CD signals by an incident **laser** beam for recording on the light absorption layer 2 through the substrate 1 are formed on the layer on the substrate 1 side from the light absorption layer 2. The recorded signals are read by the **optical** phase differences of the reflected light beams of the parts of these pits 5 and the parts exclusive thereof of the **laser** beams for reading which are made incident from the substrate 1 side.

L46 ANSWER 7 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1994-044611 JAPIO
TI DRAW TYPE **OPTICAL** DISK MEDIUM
IN IINO TETSUYA
PA NIPPON COLUMBIA CO LTD
PI JP 06044611 A 19940218 Heisei
AI JP 1992-72696 (JP04072696 Heisei) 19920221
PRAI JP 1992-72696 19920221
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1994
AB PURPOSE: To provide a draw type **optical** disk with an org. dye film capable of reproduction with a reproducer for a compact disk, a **laser** disk, etc., having a wide margin for production.
CONSTITUTION: A dye recording film 2a of an org. dye having 2.2-3.0 real part Nabs of the complex refractive index and 0.05-0.1 imaginary part **Kabs** is formed as a light absorbing layer in 0.08-0.15μm thickness on a light transmitting substrate 1a. A light interference film 3 of AlN, SiO<SB>2</SB>, Si<SB>2</SB>N<SB>3</SB>, etc., having <=2.0 refractive index is formed in 0-0.15μm thickness on the light absorbing layer and a light reflecting film 4a of Al, Au, etc., is further formed on the film 3 in >=0.05μm thickness. The substrate 1a has a V-shaped groove having 0.16-0.30μm depth and 0.4-1.0μm width of the top.

L46 ANSWER 8 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1993-062245 JAPIO
TI **OPTICAL** INFORMATION RECORDING MEDIUM
IN IINO TETSUYA; MASUDA KENJI
PA NIPPON COLUMBIA CO LTD
PI JP 05062245 A 19930312 Heisei
AI JP 1991-246715 (JP03246715 Heisei) 19910830
PRAI JP 1991-246715 19910830
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1993
AB PURPOSE: To use inexpensive materials to constitute a DRAW type **optical** disk having the reflectivity which can be reproduced with a compact disk player and **laser** disk player.
CONSTITUTION: A film is formed of org. dyes having real number part Nabs=2.2 to 3.0 of complex fractive indices and virtual real number **Kabs**<1.0 at 800 to 1300Å as a light absorption layer 2 on a substrate 1 having light transparency. An AlN 3 film is formed at >=150Å and <=1500Å on this light absorption layer 2 and further, an Al reflection film 4 is formed at >=500Å on this AlN film.

L46 ANSWER 9 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1992-324392 JAPIO
TI DETECTING APPARATUS FOR OBJECT
IN KURAHASHI AKIRA; SUZUKI MICHIHITO
PA HAMAMATSU PHOTONICS KK
PI JP 04324392 A 19921113 Heisei
AI JP 1991-94167 (JP03094167 Heisei) 19910424
PRAI JP 1991-94167 19910424
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1992
AB PURPOSE: To set a desired detection region to an arbitrary place by setting a detection area at a position where the light detection visual fields of a pair of photodetectors cross each other.
CONSTITUTION: A detection area **KAB** is set by the light detection windows 11A, 11B provided to the front surfaces of the left and right end parts of a detection part housing 1 and hoods 12A, 12B for limiting visual fields and an infrared **optical** system are provided behind the windows 11A, 11B. The outputs of infrared sensors 13A, 13B having focus elements are respectively amplified by amplifiers 21A, 21B to be applied to window comparators 22A, 22B and further applied to an AND circuit 23. When an object to be detected is remote and near, no timewise superposition is generated in the outputs of the comparators 22A, 22B and timewise superposition is generated only when the object to be detected enters the detection area **KAB**. Therefore, as the output OUT of the circuit 23, output judging whether the object to be detected enters the detection area **KAB** can be obtained.
COPYRIGHT: (C)1992,JPO&Japio

L46 ANSWER 10 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1991-099424 JAPIO
TI VAPOR PHASE EPITAXIAL GROWTH PROCESS OF COMPOUND SEMICONDUCTOR
IN NARITA SATOYASU
PA FUJITSU LTD
PI JP 03099424 A 19910424 Heisei
AI JP 1989-235912 (JP01235912 Heisei) 19890912
PRAI JP 1989-235912 19890912
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991
AB PURPOSE: To enable the four element base growing requirements to be decided simply by preliminary experiments by a method wherein the feeding requirements of vapor phase materials to specify the band gap and lattice constant of four element base **crystal** growth are set up on the basis of the data collected by three element base **crystal** growth.
CONSTITUTION: Kac(=Ka/Kc) as a ratio of taken-in coefficient of IIIa and IIIc during IIIayIIIc<SB>1-y</SB>V three element base **crystal** growth using the same vapor phase material as that of four element base **crystal** growth as well as Kbc(Kb/Kc) as a ratio of taken-in coefficient of IIIb and IIIc during IIIbyIIIc<SB>1-y</SB>V three element base **crystal** growth are actually measured. Next, Xv as a ratio of IIIa and IIIb in vapor phase material to epitaxially grow four element base III-V compound in a composition of (IIIaxIII<SB>1-x</SB>)<SB>y</SB>IIIc<SB>1-y</SB>V is measured using **Kab** (=Kac/Kbc) as a ratio of Kac and Kbc. Furthermore, Yv as a ratio of (IIIa+IIIb) and IIIc in vapor phase material to epitaxially grow four element base III-V compound in the same composition of (IIIaxIIIb<SB>1-x</SB>)<SB>y</SB>IIIc<SB>1-y</SB>V is measured by using the Xv value. Finally, a vapor phase mate rial group individually containing IIIa, IIIb and IIIc satisfying both Xv and Yv thus measured is fed to perform epitaxially growing process on a substrate **crystal** having lattice constant of APD.
COPYRIGHT: (C)1991,JPO&Japio

L46 ANSWER 11 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1988-164025 JAPIO
TI **OPTICAL** RECORDING AND REPRODUCING DEVICE
IN TAKIZAWA TERUYUKI
PA MATSUSHITA ELECTRIC IND CO LTD
PI JP 63164025 A 19880707 Showa
AI JP 1986-312186 (JP61312186 Showa) 19861226
PRAI JP 1986-312186 19861226
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1988
AB PURPOSE: To decrease the position detecting error attended with the change in the ambient temperature and the **nonlinear** characteristic of a position sensor by dividing all detection range of the position sensor into several parts, arranging them close to the linear characteristic and varying the linear characteristic with respect to the time base. CONSTITUTION: The total detection range of the **optical** position sensor 6 is divided into two and shared into an approximated linear characteristic defined by two proportion constants **Kab**, Kbc. When an object track demodulation signal T is inputted and it is smaller than a track demodulation signal Tb at the middle position, the proportion constant **Kab** is applied. As a result, the sensor position signal S to be outputted is calculated as S=**Kab**.(T-Ta)+Sa (Sa is a sensor position signal at the inner circumferential position). On the other hand in case of T>=Tb, the proportion constant Kbc is applied and as the sensor position signal S to be outputted, S=Kbc.(T-Tb)+Sb is calculated and the result is outputted as the sensor position signal S (Sb is a sensor position signal at the middle position). COPYRIGHT: (C)1988,JPO&Japio

L46 ANSWER 12 OF 12 JAPIO COPYRIGHT 2003 JPO
AN 1987-289929 JAPIO
TI **OPTICAL** RECORDING AND REPRODUCING DEVICE
IN TAKIZAWA TERUYUKI; TESHIROGI KAZUHIRO
PA MATSUSHITA ELECTRIC IND CO LTD
PI JP 62289929 A 19871216 Showa
AI JP 1986-133384 (JP61133384 Showa) 19860609
PRAI JP 1986-133384 19860609
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1987
AB PURPOSE: To reduce position errors due to the **nonlinear** characteristics of a position sensor by constituting a computing element by dividing the entire detection range of a position sensor into plural ranges, and approximating and distributing output linear characteristics to the entire detection range to plural linear characteristics. CONSTITUTION: The entire detection range of the **optical** position sensor 6 is divided into two, which are approximated and distributed to two linear characteristics **Kab** and Kbc. Then when a target tract demodulating signal is inputted, it is divided into two. If the target track demodulating signal is smaller than the track demodulating signal of an intermediate position, a target is inside of the intermediate part, so a proportional constant **Kab** is applied to find a sensor position signal. When the target track demodulating signal is larger than the track demodulating signal of the intermediate position, the target is outside the intermediate part, so a proportional constant Kbc is applied to calculate a sensor position signal. The sensor position signal which is found as mentioned above is outputted from the arithmetic unit 25 to a D/A converter 19. Consequently, superior linear characteristics are obtained by even an inexpensive device which has inferior linear characteristics. COPYRIGHT: (C)1987,JPO&Japio

L56 ANSWER 1 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 2002-583758 [62] WPIX
DNN N2002-462884 DNC C2002-165165
TI Color conversion-type **light emitting** diodes (**LEDs**) containing translucent resin distributed with fluorescent substances at defined particle sizes.
DC A85 L03 U12 U14
IN OKADA, Y; SAKAI, K; SAKANO, K; UMEZU, T
PA (NICH-N) NICHIA CORP
CYC 99
PI WO 2002059982 A1 20020801 (200262)* JA 84p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
KR 2002079953 A 20021019 (200316)
ADT WO 2002059982 A1 WO 2002-JP484 20020124; KR 2002079953 A KR 2002-711978 20020912
PRAI JP 2001-306707 20011002; JP 2001-16367 20010124; JP 2001-24794 20010131; JP 2001-45659 20010221; JP 2001-78322 20010319; JP 2001-101924 20010330; JP 2001-301833 20010928; JP 2001-302390 20010928
AB WO 200259982 A UPAB: 20020926
NOVELTY - A **light emitting** diode comprises an **LED** chip (5) having a luminous layer composed of a nitride compound semiconductor and a translucent resin (8) containing a fluorescent substance (81, 82) that absorbs at least part of light from the **LED** chip to emit a different-wavelength light.

DETAILED DESCRIPTION - A **light emitting** diode comprises an **LED** chip (5) having a luminous layer composed of a nitride compound semiconductor, and a translucent resin (8) containing a fluorescent substance (81, 82) that absorbs at least part of light from the **LED** chip to emit a different-wavelength light, in which the fluorescent substance contains small and large-particle-size fluorescent substance (82, 81, respectively) with the latter distributed in vicinity of the **LED** chip to form a color conversion layer in the translucent resin while the former distributed on outer side of the color conversion layer in such resin.

INDEPENDENT CLAIMS are also included for:

(i) a similar diode in which the fluorescent substance has a flat region in the volume-based particle-size distribution curve with an accumulated value of 0.01-10 volume % leading from zero;

(ii) another diode in which the **LED** chip is sealed in a package formed from thin metal plates applicable as positive and negative electrodes separated with an insulating rein (4) bonded onto a metal base (2) with the translucent resin (8) filled inside and outside (1) to level with the metal base;

(iii) a process for producing the diodes by assembling the packages with connection via groups of orifice plate-printed through-holes in them to their **LED** chips before applying the resin and curing;

(iv) an epoxy resin composition containing not less than 65 wt.% an epoxy resin prepared from an alicyclic epoxy resin, 0.005-1.5 moles an acid anhydride of formula (I) or dicarboxylic acid of formula (II), and 0.0001-0.01 mole cation-curing agent, both in molar equivalent to epoxy group in the resin;

(v) a process for producing the epoxy resin compositions by carrying out reaction between the epoxy resin and acid anhydride or dicarboxylic acid to form crosslinked oligomer before mixing with the curing agent;

(vi) **optical** semiconductor elements comprising at least a pair of lead electrodes, their electrically connected **optical** semiconductor chip and the resin composition-based molding resin to seal the **optical** semiconductor chip; and

(vii) a process for producing the fluorescent substances by calcination of a mixture of the starting material and a flux, during which the calcination is performed in a first reducing atmosphere and in a second reducing atmosphere and the first is a weaker reducing atmosphere than the second, and optionally the flux contains a liquid with barium fluoride and **boric acid**.

(I)

R1 = 0-12C cyclic or aliphatic alkyl or aryl.

HOOC-R2-COOH (II)

R2 = 0-12C alkyl or aryl.

USE - The diodes e.g. **optical** semiconductor elements are applicable in particularly surface-mounted device (SMD) type in backlite of liquid **crystal** displays, full-color displays, in-switch **illumination**, light source for **illumination**, various indicators and traffic signals.

ADVANTAGE - Such diodes have little unevenness in light emission, which are highly reliable with productivity.

DESCRIPTION OF DRAWING(S) - Cross-section of an SMD (surface-mounted device) type **light emitting** diode. (Drawing includes non-English language text).

Sidewall part 1

Metal base 2

Thin metal plates 2a, 2b

Insulating resin 4

LED chip 5

Die bonding resin 6

Wire 7

Translucent resin 8

Large and small particle size fluorescent substances 81, 82

Dwg.1/15

L56 ANSWER 2 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 2001-141021 [15] WPIX
DNN N2001-102997 DNC C2001-041663
TI **Non-linear optical crystal** manufacturing method involves performing **crystal** growth by mixing specific compounds in melting pot by Bridgman method.
DC L03 P81 V07 V08
PA (NIKR) NIKON CORP
CYC 1
PI JP 2000264787 A 20000926 (200115)* 5p
ADT JP 2000264787 A JP 1999-77289 19990323
PRAI JP 1999-77289 19990323
AB JP2000264787 A UPAB: 20010317

NOVELTY - **Crystal** growth is performed by adding a mixture of Sr2Be2B2O7 and solvent composition which consists of **boric acid** strontium compound (SrB2O4) and a fluoride alkali, to a melting pot (1) by Bridgman method. The composition ratio of Sr2Be2B2O7 and SrB2O4 is at most 48:52 and at least 28:72. The inner surface of the pot is protected using platinum.

USE - For manufacturing **non-linear optical crystal** used for wavelength modulation of **laser** light.

ADVANTAGE - Enables obtaining large single **crystal** effectively.

DESCRIPTION OF DRAWING(S) - The figure shows the outline of **crystal** growth reactor.

Melting pot 1
Dwg.1/3

L56 ANSWER 3 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 2000-322635 [28] WPIX
DNN N2000-242306 DNC C2000-098343
TI Beta type **boric acid** barium **crystal** element manufacturing method, involves performing **crystal** growth of barium **crystal** corresponding to predefined **crystal** plane and heat treating it at specific temperature range.
DC E33 L03 P81 U14 V07 W05
PA (SONY) SONY CORP
CYC 1
PI JP 2000098434 A 20000407 (200028)* 5p
ADT JP 2000098434 A JP 1998-273849 19980928
PRAI JP 1998-273849 19980928
AB JP2000098434 A UPAB: 20000617
NOVELTY - The beta type **boric acid** barium **crystal** is subjected to **crystal** growth corresponding to predefined **crystal** plane after which heat treatment of barium **crystal** is performed at 700-952 deg. C. DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for extreme ultraviolet radiation-**laser** beam generator.
USE - For manufacturing beta type **boric acid** barium **crystal** element for generating extreme ultraviolet radiation **laser** beam.
ADVANTAGE - The **optical** property is raised by heat treating beta type **boric acid** barium **crystal** and stable output of **laser** beam can be obtained easily. DESCRIPTION OF DRAWING - The figure shows schematic diagram of BGO **crystal** element.

L56 ANSWER 4 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1999-498161 [42] WPIX
DNN N1999-371328 DNC C1999-146507
TI **Non-linear optics crystal** in **optical** system - is made of beta-meta barium **boric-acid** which is heated to predetermined temperature.
DC L03 P81 V07
IN KANEDA, Y; KONDO, K; MASUDA, H; OKA, M; WADA, H
PA (SONY) SONY CORP
CYC 2
PI JP 11212127 A 19990806 (199942)* 8p
US 6181461 B1 20010130 (200108)
ADT JP 11212127 A JP 1998-15984 19980128; US 6181461 B1 US 1998-162105 19980928
PRAI JP 1998-15984 19980128; JP 1997-268506 19971001
AB JP 11212127 A UPAB: 19991014
NOVELTY - The **non-linear optics crystal** (5) is made of beta-meta barium **boric-acid**, which is heated to 70 deg. C or more.
USE - For generating high frequency in harmonics generator of **optical** system.
ADVANTAGE - The high frequency generation output of **optical** system is increased, due to continuous oscillation or pulse oscillation using **non-linear optics crystal**.
DESCRIPTION OF DRAWING(S) - The figure shows component diagram of high frequency generation system. (5) **Non- linear optics crystal**.
Dwg.1/5

L56 ANSWER 5 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1999-236466 [20] WPIX
CR 2000-016357 [02]
DNN N1999-175738 DNC C1999-069770
TI Ultraviolet **laser** beam isolator for **laser** generator - has barium borate **crystalline** substance arranged along specific length of **optical** path, through which **laser** beam of specific beam width is irradiated.
DC L03 P81 V07 X26
IN KONDO, K; OKA, M; WADA, H
PA (SONY) SONY CORP
CYC 2
PI JP 11064904 A 19990305 (199920)* 6p
US 6404786 B1 20020611 (200244)
ADT JP 11064904 A JP 1997-228107 19970825; US 6404786 B1 CIP of US 1998-136072 19980818, US 2000-543136 20000405
PRAI JP 1997-228107 19970825; JP 1997-243739 19970909
AB JP 11064904 A UPAB: 20020711
NOVELTY - **Laser** generated from a resonator (3) is incident on a barium borate **crystalline** substance (6) of resonator (4), which extracts higher harmonic components and outputs a **laser** light of ultraviolet frequency. The length of **crystalline** substance based on **optical** path is between 2-6 mm. The width of **laser** beam passing through **crystalline** substance is 40-60 mu m.
USE - For **laser** generator used in semiconductor manufacture.
ADVANTAGE - Increases durability of **boric acid** barium **crystalline** substance by regulating the beam width of **laser** passing through **crystalline** substance.
DESCRIPTION OF DRAWING - The figure shows a block diagram of the **laser** generator. (3,4) Resonators; (6) Barium borate **crystalline** substance.
Dwg.1/4

L56 ANSWER 6 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1995-153437 [20] WPIX
DNN N1995-120772 DNC C1995-070862
TI Binary barium and rare earth element single **crystals** - are formed from barium carbonate, barium chloride, **boric acid** and ytterbium oxide.
DC L03 V07
IN KHAMAGANOVA, T N; KLEINMAN, I A; STEFANOVICH, S YU
PA (PHYS-R) PHYS CHEM INST
CYC 1
PI SU 1838457 A3 19930830 (199520)* 4p
ADT SU 1838457 A3 SU 1991-4918404 19910312
PRAI SU 1991-4918404 19910312
AB SU 1838457 A UPAB: 19950530
Such single **crystals** of a binary borate of Ba and a rare earth element is formed by spontaneous **crystallisation** from a soln.-melt contg. cpds. of Ba, B and a rare earth element as the soln.-melt cools. The cpds. are novel in that they are in the form of BaCO3, BaCl2, H3BO3 and Yb2O3 in a molar ratio of BaCO3:Yb2O3:H3BO3:BaCl2 equal to 3:1:4:1. Under these conditions, **crystallisation** is carried out from 1200 deg.C at a cooling rate of 20-100 deg.C/hour.
USE - Is used in electronics and **nonlinear optics** for the mfr. of components needed to convert **laser** radiation frequency.
ADVANTAGE - Single **crystals** of Ba3Yb(BO3)3 are obtd. which have excellent pyroelectric and **nonlinear optical** properties.

Dwg.0/0

L56 ANSWER 7 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1994-040427 [05] WPIX
DNN N1994-031797 DNC C1994-018442
TI Magneto-**optic** recording medium reducing medium noise - has first non-**crystalline** garnet under layer, second **crystallised** garnet under layer and garnet recording layer laminated on glass board.
DC L03 T03 V02 W04
IN KURODA, S; MATSUMOTO, K; SHONO, K; TAMANOI, K
PA (FUIT) FUJITSU LTD
CYC 2
PI JP 05347039 A 19931227 (199405)* 11p
US 5599605 A 19970204 (199711) 16p
ADT JP 05347039 A JP 1993-36464 19930225; US 5599605 A US 1993-45737 19930414
PRAI JP 1992-96893 19920417
AB JP 05347039 A UPAB: 19940315
In a new magneto-**optic** recording medium using a garnet thin film, a first uncrystallised garnet under layer (2), a second **crystallised** garnet under layer (3) and a garnet recording layer (4) are laminated on a glass board (1).

Also claimed are: (i) a new medium having an aluminium-substd. garnet under layer (12) and a garnet recording layer (14) laminated on a glass board (11); (ii) a new medium having a garnet under layer (22), a garnet middle layer (23) composed of a ferromagnetic bismuth-substd. garnet film and a garnet recording layer (24) laminated on a glass board (21); and (iii) a new medium having an aluminium-substd. garnet under layer (31), a garnet middle layer (33) composed of a ferromagnetic bismuth-substd. garnet film and a garnet recording layer (34) laminated on a glass board (31).

The boards (1, 11, 21, 31) are pref. made of an aluminosilicate or a **boric acid** type glass. Pref. the layers (2), (3), (12), (22) and (32) are of formula AXR3-XMYFe5-YO12 (where X is smaller than 3; Y is smaller than 5; R is Y and/or a rare earth element(s); A is an element substitutable with a rare earth element; and M is an element substitutable with Fe).

USE/ADVANTAGE - The media has smooth surfaces and reduce medium noise.

Dwg.1/11

L56 ANSWER 8 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1992-155609 [19] WPIX
DNN N1992-116332 DNC C1992-071720
TI Reliable **optical** isolator prepn. for communication system - by inserting Faraday rotor contg. magneto-**optical crystal** in permanent magnet, between analyser and prismatic polariser.
DC L03 P81 V07
PA (FJIC) FDK CO LTD
CYC 1
PI JP 04093814 A 19920326 (199219)* 4p
ADT JP 04093814 A JP 1990-206476 19900803
PRAI JP 1990-206476 19900803
AB JP 04093814 A UPAB: 19931006
Prepn. comprises inserting a body juction having a faraday rotator with magnetic **optical crystal** in a permanent magnet between an analyser and a polariser have prismatic structure in a prism holder.

A permanent magnet holder is formed outside of the permanent magnet, the prism holder and the prism are fused bound by a lower m.pt. glass, and the permanent magnet and the holder and the magnetic **optical crystal** are fuse bound by a lower m.pt. glass to form the permanent magnet holder and the prism holder as integral parts.

USE/ADVANTAGE - The isolator used for **optical** communication system has improved reliable life, since no unreliable binder is used.

In an example, a Faraday rotor was produced by inserting a permanent magnet in a stainless steel permanent magnet holder and fuse bound by a lower m.pt. glass, a magnetic **optical crystal** was fixed in magnet by lower m.pt. glass of a lead **boric acid** glass at 420-430 deg.C, a polariser and analyser made of prism were set in stainless steel permanent magnet holder having same periphery surface and hole using lower m.pt. glass were solder by **laser** in a body juction at 420-430 deg.C. (1/3)

1/3

L56 ANSWER 9 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1991-366489 [50] WPIX
DNC C1991-158063
TI Barium strontium borate single **optically** active **crystal** growth - by withdrawing from melt using calcined strontium-contg. prod. of **boric acid**, barium- and strontium- chloride.
DC J04 L03
PA (NIDE) NEC CORP
CYC 1
PI JP 03247596 A 19911105 (199150)* 2p
JP 2822543 B2 19981111 (199850) 2p
ADT JP 03247596 A JP 1990-42842 19900223; JP 2822543 B2 JP 1990-42842 19900223
FDT JP 2822543 B2 Previous Publ. JP 03247596
PRAI JP 1990-42842 19900223
AB JP 03247596 A UPAB: 19930928
Single **crystal** of strontium contg. barium borate is grown by withdrawing from melt, using raw material obtd. by calcination of strontium contg. prod. pptd. from aq. soln. of **boric acid**, barium and strontium-chloride.

ADVANTAGE - Barium strontium borate single **crystal** with **nonlinear optically** active beta-phase structure can be grown readily without using flux.

In an example, BaCl2.2H2O 0.7 mol., SrCl2 0.1 mol. and H2BO3 1.6 mol. were dissolved in 15. 1 of water and pH was adjusted at 12 to ppte. (BaSr)B2O4.4H2O. Ppte. was calcined at 800 deg. C for three hrs. to convert to (BaSr)B2O4 of beta-phase structure. Calcinate was filled in platinum crucible and withdrawn in air at 3mm/hr with spinning of 20 r.p.m.. Single **crystal** in C-axis withdrawal, 10 mm in dia. and 15 mm long was obtd.. Nd:YAG **laser** beam irradiation produced green (wavelength 0.53 micron) second harmonic light.

0/0

L56 ANSWER 10 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1991-089985 [13] WPIX
DNN N1991-069373 DNC C1991-038434
TI Organic **nonlinear optical** material - comprises aminoacid salt of valine and inorganic phosphoric acid. for short wavelength conversion device etc..
DC E19 E36 L03 P81 V07
PA (HOYA) HOYA CORP
CYC 1
PI JP 03033834 A 19910214 (199113)*
ADT JP 03033834 A JP 1989-168872 19890630
PRAI JP 1989-168872 19890630
AB JP 03033834 A UPAB: 19930928
Organic **nonlinear optical** material is made of aminoacid salt obtd. from amino acid(s) chosen from valine, tryptophan, leucine, threonine and lysine, and inorganic acid(s) chosen from phosphoric, iodic and **boric-acid**.

USE/ADVANTAGE - By using aminoacid salt **crystal** made of above aminoacid and above inorganic acid, organic **nonlinear optical** material with large **nonlinear optical** constant, which is stable in air, and is transparent in short wavelength region, and shows good **crystallinity** and **crystal** processability, can be produced. Esp. useful for wavelength conversion device into short wavelength region.

In an example, valine and phosphoric acid are used to produce valine phosphate salt, size of the **crystal** was 5 x 5 x 1.5 mm and larger than conventional urea **crystal**.

1/2

L56 ANSWER 11 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1991-060919 [09] WPIX
DNC C1991-025699
TI Beta-barium-borate single **crystal** is reared by raising method - from melted liq. of barium borate di hydrate raw material obtd.by pptn. from aq. soln. of **boric acid** and chloride di hydrate.
DC E33 L03
PA (NIDE) NEC CORP
CYC 1
PI JP 03008713 A 19910116 (199109)*
JP 07115860 B2 19951213 (199603) 2p
ADT JP 03008713 A JP 1989-143562 19890605; JP 07115860 B2 JP 1989-143562 19890605
FDT JP 07115860 B2 Based on JP 03008713
PRAI JP 1989-143562 19890605
AB JP 03008713 A UPAB: 19930928
Beta -BaB2O4 single **crystal** is reared by a raising method from the melting liq. The raw material, BaB2O4.2H2O is produced by chemical precipitation from aq. soln. of H3BO3 and BaCl.2H2O. In the process, NH4OH is used for regulating pH.

USE/ADVANTAGE - Prodn. of the rearing raw material of **nonlinear optical crystal** beta-barium borate (beta-BBO) single **crystal** is improved. In the method, high quality beta-BBO single **crystal** rearing raw material having no impurity can be obtd.

In an example, powder of H3BO4 and BaCl2.4H2O were mixed with mole ratio 2:1. The powder was added to water which was carefully heated at under 50 deg.C. It was dissolved just before satn. Conc. ammonia-water soln. was added until the pH became at least 12. BBO hydrate was precipitated. The BBO hydrate was washed and dried. It was put into a platinum container and heated at 1,250 deg.C for 3 hours. The material obtd. contained metal ion under the detection limit (up to 10 ppm). From the raw material, beta-BBO single **crystal** was reared.

0/0

L56 ANSWER 12 OF 16 WPIX (C) 2003 THOMSON DERWENT
AN 1984-250331 [41] WPIX
DNN N1984-187266 DNC C1984-105830
TI Low capacitance varistor for multiplexed liq. **crystal** display - comprises zinc oxide contg. antimony oxide and bismuth, cobalt, manganese, nickel and chromium oxide(s), barium carbonate and **boric acid**.
DC L03 P81 P85 T04 U14 V01
IN LEVINSON, L M
PA (GENE) GENERAL ELECTRIC CO
CYC 2
PI CA 1174344 A 19840911 (198441)* 16p
US 4490014 A 19841225 (198502)
ADT CA 1174344 A CA 1982-394621 19820121; US 4490014 A US 1981-233423 19810211

PRAI US 1979-37873 19790510; US 1981-233423 19810211
AB CA 1174344 A UPAB: 19930925
Multiplex liq. **crystal** matrix display has display electrodes and non-intersecting column electrodes connected through a slab of **nonlinear** varistor material comprising ZnO contg. 2-8 mole % Sb2O3, Bi2O3 in an amt. less than half the Sb2O3 and at least one of Co2O3, MnO2, NiO, Cr2O3, BaCO3 and H3BO3.

Pref. varistor material has a dielectric constant and breakdown field product of at most 1.14 x 10 power 6 V/cm. Mole ratio of Sb2O3 to BiO2 is 4:1. Content of each of the other materials apart from Sb2O3 is less than 1 mole %.

ADVANTAGE - Varistor material has low capacitance whilst maintaining its characteristic breakdown voltage, thus enhancing the multiplexing capabilities of the display.
2/3

L56 ANSWER 13 OF 16 JAPIO COPYRIGHT 2003 JPO
AN 1998-123579 JAPIO
TI **NONLINEAR OPTICAL CRYSTAL**
IN YAMADA KAZUHIRO; TAKEMURA SHUJI
PA MITSUI CHEM INC
PI JP 10123579 A 19980515 Heisei
AI JP 1996-274610 (JP08274610 Heisei) 19961017
PRAI JP 1996-274610 19961017
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1998
AB PROBLEM TO BE SOLVED: To obtain a **nonlinear optical crystal** of a **boric acid** system having high SHG(second harmonic wave generation) by having a specific **crystal** compsn.
SOLUTION: This **nonlinear optical crystal** has the **crystal** compsn. expressed by Na<SB>x</SB>Gd<SB>y</SB>B<SB>z</SB>O<SB>(x+3y+3z)/2</SB> (where, x is 32 to 35, y is 25 to 29, z is 36 to 41, x+y+z=100). Such **nonlinear optical crystal** includes, the solid soln. of this **crystal** compsn., the multiple oxide of the **boric acid** system, such as compsn. formula Na<SB>6</SB>Gd<SB>5</SB>B<SB>7</SB>O<SB>21</SB>, etc. The **nonlinear optical crystal** is produced by growing the **crystal** using, for example, soldium carbonate (Na<SB>2</SB>CO<SB>3</SB>), gadolinium oxide (Gd<SB>2</SB>O<SB>3</SB>) and **boric acid** or boric anhydride (B<SB>2</SB>O<SB>3</SB>) as starting raw materials. More specifically, the prescribed amts. of the sodium carbonate, the gadolinium oxide and the boric anhydride are mixed and are then press molded to form pellets and these pellets are baked for 10 to 100 hours at 500 to 1000°C.
COPYRIGHT: (C)1998,JPO

L56 ANSWER 14 OF 16 JAPIO COPYRIGHT 2003 JPO
AN 1991-247596 JAPIO
TI METHOD FOR GROWING SINGLE **CRYSTAL**
IN KOUDA HIKARI
PA NEC CORP
PI JP 03247596 A 19911105 Heisei
AI JP 1990-42842 (JP02042842 Heisei) 19900223
PRAI JP 1990-42842 19900223
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991
AB PURPOSE: To easily obtain a **crystal** having a β-phase structure and **nonlinear optical** activity by using a calcined body of β-barium borate hydrate contg. Sr introduced by coprecipitation as starting material when a **crystal** of β-barium borate contg. Sr is grown by a direct pulling method.
CONSTITUTION: **Boric acid**, barium chloride and

strontium chloride are dissolved in water and the pH of the resulting soln. is adjusted to precipitate (Ba,Sr)B<SB>2</SB>O<SB>4</SB>.4H<SB>2</SB>O having a β-phase structure as starting material for growth and a **crystal** of β-(Ba,Sr)B<SB>2</SB>O<SB>4</SB> (BSBO) is grown from a melt of the starting material by a direct pulling method without using a flux. Since BSBO hydrate obtd. by introducing Sr by coprecipitation at the time of chemical precipitation is used without adding strontium oxide to β-barium borate as starting material, this purpose can be attained.

L56 ANSWER 15 OF 16 JAPIO COPYRIGHT 2003 JPO
AN 1991-033834 JAPIO
TI ORGANIC **NONLINEAR OPTICAL** MATERIAL
IN SUZUKI AKIYOSHI; MATSUOKA YOSHIHIKO
PA HOYA CORP
PI JP 03033834 A 19910214 Heisei
AI JP 1989-168872 (JP01168872 Heisei) 19890630
PRAI JP 1989-168872 19890630
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1991
AB PURPOSE: To obtain the quadratic **nonlinear optical** material which has a large **nonlinear optical** constant, is stable in the atm. air, is transparent in a short wavelength region, and has excellent **crystallinity** and **crystal** workability by using an aminate **crystal** consisting of amino acid and inorg. acid.
CONSTITUTION: This **optical** material consists of the aminate obtd. from at least one kind of the amino acids selected from valine, tryptophan, leucine, threnione and lysine and at least one kind of the inorg. acids selected from phosphoric acid, iodinic acid and **boric acid**. The **crystal** of the valine phosphate is obtd. by mixing, for example, valine and phosphoric acid in an aq. soln. of equal molar ratio, then lowering the temp. to attain a supersatd. state in this case. The quadratic **nonlinear optical** which has the large **nonlinear optical** constant, is stable in the atm. air, is transparent up to about 270nm and is excellent in **crystallinity** and **crystal** workability is obtd. in this way.

L56 ANSWER 16 OF 16 JAPIO COPYRIGHT 2003 JPO
AN 1990-172891 JAPIO
TI METHOD FOR GROWING SINGLE **CRYSTAL**
IN ITO KATSUHISA; KUWANO YASUHIKO
PA NEC CORP
PI JP 02172891 A 19900704 Heisei
AI JP 1988-325203 (JP63325203 Showa) 19881222
PRAI JP 1988-325203 19881222
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990
AB PURPOSE: To make it possible to grow a **nonlinear optical** single **crystal** of β-barium borate by a pulling method without using a flux by using barium borate produced by bringing an aq. soln. of **boric acid** and an aq. soln. of barium chloride into a precipitate forming reaction as starting material to be filled into a crucible.
CONSTITUTION: An aq. soln. of barium chloride (BaCl<SB>2</SB>.2H<SB>2</SB>O) is added to an aq. soln. of **boric acid** (H<SB>3</SB>BO<SB>3</SB>) to form a precipitate. At this time, the **boric acid** soln. is preferably kept at <=50°C and adjusted to pH>=12 with alkali so as to prevent the formation of BaB<SB>4</SB>O<SB>7</SB> as a by-product. The resulting

BaB<SB>2</SB> O<SB>4</SB>.nH<SB>2</SB>O precipitate is washed, dried, put in a platinum crucible, melted by heating to 1,150°C at 50°C/hr rate in an electric furnace, slowly cooled to 1,000°C at 10°C/hr rate and allowed to cool at the outside of the furnace to obtain β-BaB<SB>2</SB>O<SB>4</SB>. A single **crystal** of β-BaB<SB>2</SB>O<SB>4</SB> is obtd. by a pulling method using the β-BaB<SB>2</SB>O<SB>4</SB> as starting material.